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An assessment of Masticatory Performance in Partially Edentulous Patients with Implants using the Simplified Sieve Method

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Purpose:

Though various kinds of assessment methods have been introduced to evaluate the oral functions, the information on the objective assessment of masticatory functions in patients who received prosthodontic treatments is not enough. We have developed a simplified sieve method for determining masticatory performance using hydrocolloid material, and reported on the validity and utility of the method for healthy dentate individuals. The purposes of this study were to confirm the improvement of masticatory functions of the partially edentulous patients who received the implant prosthetic treatment and to examine the usefulness of our simplified method.

Method:

Seven partially edentulous patients (2 females and 5 males, 38-74 years old) who exhibited missing molars in one side of the mandible and received the implant prosthetic treatment participated in the study. Subjects were instructed to chew a column-shape hydrocolloid material for 10 and 20 strokes, and the crushed material was collected. The sample was put on the standard sieves and washed with tap water. The number of particles left on the specific sieves (mesh size: 1.4 and 1.18mm) was counted, and the masticatory performance was calculated. The value of masticatory performance was compared between the conditions without and with superstructures.

Results:

The statistical analyses (paired t-test) performed on the data revealed that the masticatory performance was significantly improved with the superstructures (1.18mm: $p<0.01$; 1.4mm: $p<0.05$).

Conclusion:

The improvement of the masticatory performance of the partially edentulous patients with the implant superstructures was confirmed. Our simplified method for determining masticatory performance could be useful for the evaluation of masticatory performance in the patients with implants.